

-- DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS--

A Marked-up Version of Amended Specification Pages 1, 2 and 6 is enclosed.

IN THE CLAIMS:

Please cancel claims 1 to 12 without prejudice, and please insert new claims 13 to 24.

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13. A semiconductor wafer, comprising
- a substrate wafer made of monocrystalline silicon and an epitaxial layer deposited thereon;
- said substrate wafer having a resistivity of from 0.1 to 50 Ωcm , an oxygen concentration of less than $7.5 \times 10^{17} \text{ atcm}^{-3}$ and a nitrogen concentration of from 1×10^{13} to $5 \times 10^{15} \text{ atcm}^{-3}$; and
- the epitaxial layer has a thickness of from 0.2 to 1.0 μm and has a surface on which fewer than 30 LLS defects with a size of more than 0.085 μm can be detected.
14. The semiconductor wafer as claimed in claim 13,
- wherein the oxygen concentration of the substrate wafer is less than $6.5 \times 10^{17} \text{ atcm}^{-3}$.
15. The semiconductor wafer as claimed in claim 13,
- wherein the nitrogen concentration of the substrate wafer lies in a range of from 1×10^{14} to $5 \times 10^{14} \text{ atcm}^{-3}$.

16. A process for producing a semiconductor wafer with an epitaxial layer by depositing the layer on a substrate wafer made of monocrystalline silicon, by a sequence of steps comprising:

providing a substrate wafer, having a resistivity of from 0.1 to 50 Ωcm , an oxygen concentration of less than $7.5 \times 10^{17} \text{ atcm}^{-3}$ and a nitrogen concentration of from 1×10^{13} to $5 \times 10^{15} \text{ atcm}^{-3}$;

heating the substrate wafer in a deposition reactor to a deposition temperature of at least 1120°C to 1170°C ; and

immediately after the deposition temperature has been reached, depositing of the epitaxial layer with a thickness of from 0.2 to 1.0 μm .

17. A process for producing a semiconductor wafer with an epitaxial layer by depositing the layer on a substrate wafer made of monocrystalline silicon, by a sequence of steps comprising:

providing a substrate wafer by separating the substrate wafer from a single crystal which has been pulled according to the Czochralski process and subjected to forced cooling,

said substrate wafer having a resistivity of from 0.1 to 50 Ωcm , an oxygen concentration of less than $7.5 \times 10^{17} \text{ atcm}^{-3}$ to $5 \times 10^{15} \text{ atcm}^{-3}$;

heating of the substrate wafer in a deposition reactor to a deposition temperature of at least 1120°C ; and

immediately after the deposition temperature has been reached, depositing the epitaxial layer with a thickness of from 0.2 to 1.0 μm .

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18. The process as claimed in claim 16, comprising
pulling a single crystal from a melt in accordance with
the Czochralski process, and at least 90 minutes elapsing before
the single crystal has passed through a temperature range of from
1050°C to 900°C, the single crystal serving as a source for the
providing of the substrate wafer, and the deposition temperature
during the depositing of the epitaxial layer is from 1120°C to
1170°C.

19. The process as claimed in claim 16, comprising
pulling a single crystal from a melt in accordance with
the Czochralski process and not more than 40 minutes elapsing
before the single crystal, with application of forced cooling, has
passed through the temperature range from 1050°C to 900°C, the
single crystal serving as a source for the providing of the
substrate wafer, and the deposition temperature during the
depositing of the epitaxial layer is from 1120°C to 1200°C.

20. The process as claimed in claim 19,
wherein the deposition temperature is from 1130°C to
1190°C.

21. The process as claimed in claim 16, comprising
heating the substrate wafer to the deposition temperature
in a gas atmosphere being selected from the group of gases
consisting of hydrogen, argon, helium and mixtures of these gases.